

E7.5-10130  
CR-142050

Title of Investigation: Design Data Collection with Skylab/EREP Microwave Instrument  
S-193

Title of Report: Design Data Collection with Skylab/EREP Microwave Instrument S-193

RSL Monthly Letter Progress Report #14

November, 1974

"Made available under NASA sponsorship  
in the interest of early and wide dis-  
semination of Earth Resources Survey  
Program information and report availability  
for any use made thereof."

NASA Contract NAS 9-13331

Prepared for:

Principal Investigations Management Office  
Technical Monitor: Mr. Larry B. York  
NASA Lyndon B. Johnson Space Center  
Houston, Texas 77058

Prepared by:

Arun Sobti, Project Engineer  
University of Kansas Center for Research, Inc.  
Remote Sensing Laboratory  
Lawrence, Kansas 66045

Type of Report: Monthly Letter Progress Report

(E75-10130) DESIGN DATA COLLECTION WITH  
SKYLAB/EREP MICROWAVE INSTRUMENT S-193  
Monthly Letter Progress Report No. 14, Nov.  
1974 (Kansas Univ. Center for Research,  
Inc.) 3 p HC \$3.25

N75-16949

Unclas

CSCL 09D G3/43 00130

DESIGN DATA COLLECTION WITH SKYLAB/EREP  
MICROWAVE INSTRUMENT S-193

The University of Kansas Center for Research, Inc., reports the following work performed during the period 1 November, 1974, to 30 November, 1974.

1.0 CONTINUING STUDIES

1.1 (Task 2.1.1.2, 2.1.3.1, 2.1.3.2) Development of Catalogue for Radiometer Measurements Performed to Date.

This effort was temporarily postponed.

1.2 (Task 2.1.3.3) Study of Effects of Atmosphere Upon S193 Rad/Scat Measurements.

Satisfactory progress was made on this study.

1.3 (Task 2.1.1.5, 2.1.3.1, 2.1.3.2) Ground Truth Collection and Data Catalogue-  
Significant Highlights.

Decommuration and reformatting of NASA tapes, required for machine processing at our computer facility, are proceeding satisfactorily. The data-base is being enlarged and the inclusions being properly tagged. This task must, unfortunately, be a continuing effort because often a segment of data appears to be suspect, and must be properly screened before including in the data-base.

Some of the highlights of this month's activity are enumerated below.

a). Specific Site Studies.

Conclusive results showing the response of the S193 Radiometer/Scatterometer were obtained in the study of the Texas site. A copy of the text of a paper presented at the URSI Specialists Meeting in Berne, Switzerland, October, 1974, documenting these results is attached. The study of the Utah Site is continuing.

b). Computer Data Analysis.

Computer-aided data analysis is progressing satisfactorily.

c). Manual Classification.

Classification of target footprints based upon imagery and topographic maps is progressing satisfactorily.

ORIGINAL PAGE IS  
OF POOR QUALITY

## 2.0 REPORTS COMPLETED.

One report was completed this month, "Soil Moisture Detection by Skylab's Microwave Sensors," RSL Technical Report 243-9, F. T. Ulaby, John Barr, Arun Sobti and R. K. Moore, October, 1974.

This report constitutes the text of a paper presented at the URSI Specialists Meeting in Berne, Switzerland, October, 1974.

## 3.0 SPECIAL ANALYSES.

No special analyses were requested of us this month.

## 4.0 DATA RECEIVED.

No data were received this month.

## 5.0 COMMENT.

The highest scatterometer pitch data for the ITC mode is suspect. The S193 scan did not achieve its designed excursion and the antenna was pitched around  $41.0^\circ$  for the scatterometer measurement. This caused the return signal to be on the edge of the Doppler filter skirt. Corrections were made to compensate for this effect by NASA. These corrections appear to be incorrect because the backscatter coefficient for  $42^\circ$  incidence is often shown higher than for  $37^\circ$ .